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Pertusaria albiglobosa, a new lichen from China

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Abstract — *Pertusaria albiglobosa* is described as new, based on collections from Shaanxi province in China. The species is characterized by the white thallus, spherical verrucae, asci with 2 smooth-walled ascospores, and the presence of 2′-O-methylperlatolic acid and 4,5-dichlorolichexanthone. It grows on rotten mosses in alpine meadow at elevations of 3570–3760 m.

Key words — *Pertusariaceae*, *Pertusariales*, lichenized fungi, western China

Introduction

Species of *Pertusaria* DC. colonize almost all habitats. The apothecial structure, the number and structure of the ascospores and the chemistry are the diagnostic characters in identification of *Pertusaria* species (Oshio 1968, Dibben 1980, Archer 1997, Schmitt & Lumbsch 2004). In China, the genus received little attention until Zhao et al. (2004) published an annotated key to the revised taxa of *Pertusaria* from China in which 41 species and 4 varieties were accepted. A recent study of the *Pertusaria* specimens collected from Qinling Mountains in western China revealed a new species, described here.

Materials & methods

All specimens examined are preserved in SDNU (the Lichen Section of Botanical Herbarium, Shandong Normal University). An Olympus SZ 51stereomicroscope and Olympus CX 21 compound microscope were routinely used for the morphological and anatomical examinations. Colour reactions (spot tests) were made using standard methods (Orange et al. 2001). The chemical constituents were identified using thin layer chromatography (TLC) (Culberson 1972) and gradient-elution high performance liquid chromatography (HPLC) (Lumbsch 2002).

Pertusaria albiglobosa Q. Ren, **sp. nov.** Plate 1

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Differs from *Pertusaria trochiscea* by its 2-spored asci, its production of 2′-O-methylperlatolic acid, and its lack of stictic acid.

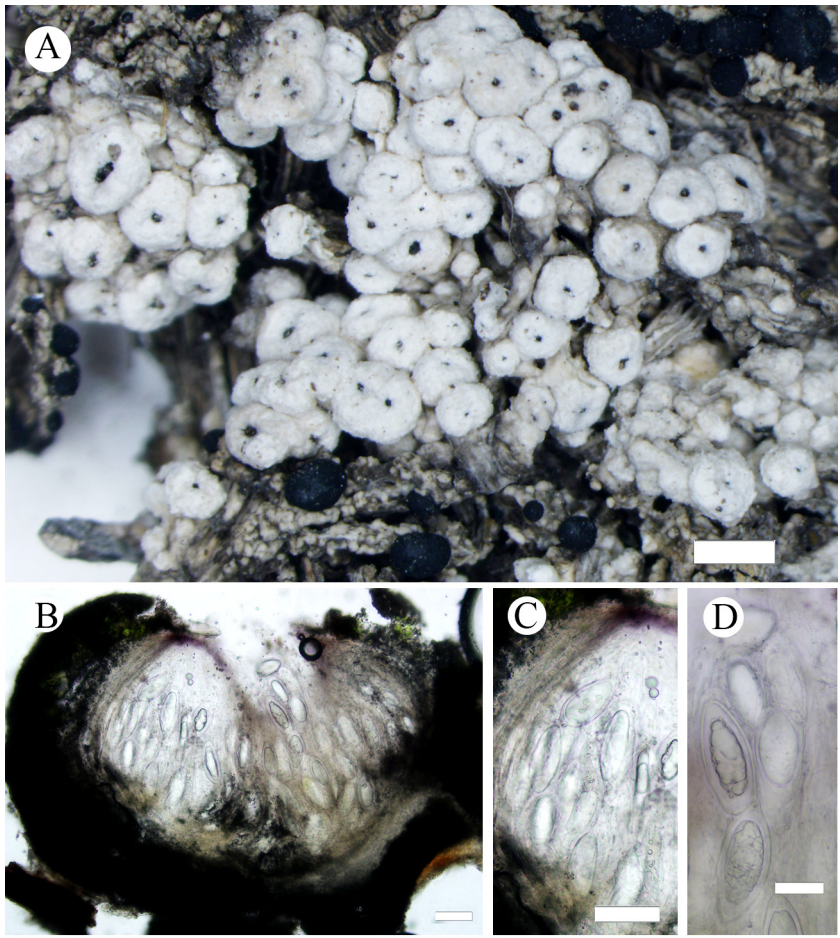

Plate 1. *Pertusaria albiglobosa* (J.Zh. Zhao 899, SDNU). A. Thallus; B. Apothecium, cross-section; C–D. Asci with 2 ascospores. Bars: A = 1 mm; B & C = 100 μm; D = 50 μm.

Type: China. Shaanxi: Taibai Co., Mt. Qinling, Baxiantai, 33°67′N 107°58′E, alt. 3760 m, 5 Aug. 2005, J.Zh. Zhao 899 (**Holotype,** SDNU).

Etymology: Latin *albiglobosa*, referring to the colour of the thallus and the shape of the fertile verrucae.

Thallus white or whitish-gray, episubstratal, thin or fairly thick, the margin entire and unzoned; surface tuberculate, matt and continuous; isidia and soredia absent. Verrucae numerous, crowded or well dispersed, but occasionally fused, (0.5–)0.7–1.0(–1.2) mm in diameter, concolorous with the thallus, persistently closed and appearing as a spherical protuberance;

ostioles single, black. Apothecia 1 (occasionally 2–3) per verruca, the fruit center hyaline; epithecium brown, K+ violet, hypothecium hyaline, hymenium colorless, 325–450 µm thick. Asci clavate or cylindric; ascospores 2 per ascus, uniseriate, ellipsoid to fusiform (at times deformed), 63–135(–163) × 30–55 µm, the spore wall double, smooth, 7.5–10 µm thick, and usually trimmed, the end wall 12.5–17.5 µm thick. Pycnidia unknown.

Spot tests — cortex: all chemical tests negative, UV–; medulla: all chemical tests negative.

Secondary metabolites — 4,5-dichlorolichexanthone and 2′-O-methylperlatolic acid (HPLC).

Ecology — *Pertusaria albiglobosa* is a muscicolous species occurring in alpine meadows. It is known only from Shaanxi province (western China) at elevations of 3570–3760 m.

Additional specimens examined — **China**. **Shaanxi**: Taibai Co., Mt. Qinling, Wengong Temple, alt. 3570 m, 5 Aug. 2005, Ch.L Wang & F. Yang TBW052 (SDNU); alt. 3600 m, 5 Aug. 2005, Sh.X. Guo & Y.J. Li QL004 (SDNU); Baxiantai, alt. 3767 m, 5 Aug. 2005, Sh.X. Guo & X.L. Shi QL191 (SDNU).

Comments — *Pertusaria albiglobosa* is characterised by the matte white thallus, spherical verrucae, 2-spored asci, smooth-walled spores, and chemistry. In morphology and habitat, this species is very similar to *P. trochiscea* Norman and *Megaspora verrucosa* (Ach.) L. Arcadia & A. Nordin, which differ in number of ascospores per ascus and the chemistry: *P. trochiscea* produces 4 spores per ascus and 4,5-dichlorolichexanthone and stictic acid, and *M. verrucosa* produces 8 spores per ascus and no lichen products. *Pertusaria saximontana* Wetmore also has a similar anatomy and chemistry but is readily distinguished by the shiny gray thallus, wide blackish discs usually surrounded by an eroded inner verrucal margin, smaller ascospores, and its habitats. *Pertusaria signyae* Øvstedal, which might be confused with the new species, is also a muscicolous (also saxicolous) species with 2 smooth spores per ascus, but it has isidia and contains 2'-O-methylperlatolic acid only.

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